AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): A device for measuring apoptotic activity of an eye, said device ~~the auto-fluorescence of a retina~~ comprising:

an excitation light source ~~adapted to provide~~ to provide an excitation light that maximizes the excitation of flavoprotein auto-fluorescence in a retina[[;]] and minimizes the excitation of non-flavoprotein auto-fluorescence in the retina[[;]] and

[[an]] image capture means for ~~device adapted to record~~ recording a single image representative of a retinal fluorescence signal generated immediately in response to the excitation light to minimize inaccuracies introduced by eye movements and rapid physiological changes, [[the]] said image capture means including[[:]]

a filter to maximize the passage of flavoprotein auto-fluorescence in the ~~retina~~ retinal fluorescence signal[[;]] and

[[an]] image intensifier means for providing a focused amplified image showing evidence of apoptotic activity in the eye and ~~adapted to~~ increase the retinal fluorescence signal strength.

Claim 2 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, wherein [[the]] said excitation light source comprises a mercury lamp.

Claim 3 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, wherein [[the]] said excitation light source comprises a laser.

Claim 4 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, wherein [[the]] said excitation light source is aligned with the retina using a dichroic reflector.

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Claim 5 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, wherein [[the]] said excitation light source is aligned with the retina using a fiber optic system.

Claim 6 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, wherein [[the]] said image capture means ~~device~~ comprises a charge coupled device.

Claim 7 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, wherein [[the]] said image capture means ~~device~~ comprises a still camera.

Claim 8 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, wherein [[the]] said image capture means ~~device~~ comprises a charge coupled device camera.

Claim 9 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, wherein [[the]] said image intensifier means includes a gain factor of at least 100.

Claim 10 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, wherein [[the]] said image capture means ~~device~~ has a field of view sized to capture a single image of the retinal fluorescence signal generated by the retina.

Claim 11 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, further comprising a processor programmed to analyze the retinal fluorescence signal with respect to a second stored retinal fluorescence signal.

Claim 12 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 1, further comprising a processor programmed to analyze the retinal fluorescence signal to determine a contrast change.

Claim 13 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 12, wherein [[the]] said processor is programmed to analyze the retinal fluorescence signal to determine a local contrast change.

Claim 14 (Currently Amended): The device ~~for measuring the autofluorescence of a retina~~ of claim 12, wherein [[the]] said processor is programmed to analyze the retinal fluorescence signal to determine a rate of contrast change.

Claim 15 (Cancelled)

Claim 16 (Currently Amended): A method of noninvasively measuring apoptotic ~~the metabolic~~ activity ~~of a retina~~, the method comprising:
   ~~aligning an image detection device with the subject retina;~~
   ~~aligning an excitation light source with the subject retina;~~
   providing an excitation light generated by the excitation light source to induce retinal auto-fluorescence in a [[the]] subject retina, wherein the excitation light maximizes the excitation of flavoprotein auto-fluorescence and minimizes the excitation of non-flavoprotein auto-fluorescence;
   capturing a single image representing the induced retinal auto-fluorescence immediately, to minimize inaccuracies introduced by eye movements and rapid physiological changes,
   intensifying [[the]] said immediately captured single image to increase the signal strength of the retinal autofluorescence; and
   analyzing [[the]] said immediately captured single image to determine apoptotic activity ~~a contrast~~.

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Claims 17-19 (Cancelled)

Claim 20 (Currently Amended): The method of ~~non-invasively measuring metabolic activity of a retina of~~ claim 16, ~~wherein aligning the image detecting device includes~~ including aligning a still camera.

Claim 21 (Currently Amended): The method of ~~non-invasively measuring metabolic activity of a retina of~~ claim 16, ~~wherein aligning the image detecting device includes~~ including aligning an image intensifier.

Claim 22 (Currently Amended): The method of ~~non-invasively measuring metabolic activity of a retina of~~ claim 16, ~~wherein aligning the image detecting device includes~~ including generating the excitation light at an excitation wavelength of about 460 nm.

Claim 23 (Currently Amended): The method of ~~non-invasively measuring metabolic activity of a retina of~~ claim 16, further including reducing the amount of ambient light presented to the subject retina.

Claim 24 (Currently Amended): The method of ~~non-invasively measuring metabolic activity of a retina of~~ claim 16, further including filtering the induced retinal autofluorescence to maximize the passage of flavoprotein auto-fluorescence and attenuate non-flavoprotein auto-fluorescence.

Claim 25 (Currently Amended): The method of ~~non-invasively measuring metabolic activity of a retina of~~ claim 16, wherein capturing a single image includes capturing an image representative of the auto-fluorescence specific to flavoproteins.

Claim 26 (Currently Amended): The method of ~~non-invasively measuring metabolic activity of a retina of~~ claim 16, <u>further including</u> ~~wherein~~ analyzing the single image <u>and</u> comparing the single image with a second stored single image.

Claim 27 (Currently Amended): The method of ~~non-invasively measuring metabolic activity of a retina of~~ claim 16, wherein analyzing the single image <u>further</u> includes determining a local contrast change.

Claim 28 (Currently Amended): The method of ~~non-invasively measuring metabolic activity of a retina of~~ claim 16, wherein <u>said step of</u> analyzing the single image includes determining a rate of contrast change.

Claim 29 (Currently Amended): The method of ~~non-invasively measuring metabolic activity of a retina of~~ claim 16, further including aligning at least one objective lens between [[the]] <u>an</u> image detection device and the subject retina.

Claim 30 (Currently Amended): A method of upgrading a standard imaging device to non-invasively measure <u>apoptotic</u> ~~the metabolic~~ activity of a retina, the method comprising:

replacing a standard light source with an excitation light source for generating a filtered excitation light that maximizes the excitation of flavoprotein auto-fluorescence and minimizes the excitation of non-flavoprotein autofluorescence;

positioning an image detection device to detect a single image representing a retinal auto-fluorescence generated in response to the filtered excitation light <u>immediately, to minimize inaccuracies introduced by eye movements and rapid physiological changes</u>; and

increasing the intensity of the single image using an intensifier.

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Claim 31 (Previously Presented): The method of upgrading a standard imaging device of claim 30, further comprising positioning a filter between the image detection device and a subject retina to maximize the passage of flavoprotein auto-fluorescence and attenuate non-flavoprotein auto-fluorescence.

Claim 32 (Original): The method of upgrading a standard imaging device of claim 30, wherein providing the excitation light source includes providing a mercury lamp.

Claim 33 (Original): The method of upgrading a standard imaging device of claim 30, wherein providing the excitation light source includes providing a laser.

Claim 34 (Previously Presented): The method of upgrading a standard imaging device of claim 30, wherein generating the filtered excitation light includes producing light at a wavelength of about 460 nm.

Claim 35 (Original): The method of upgrading a standard imaging device of claim 30, further comprising positioning at least one objective lens to scale the detected signal image.

Claim 36 (Currently Amended): The device ~~for measuring the auto-fluorescence of a retina~~ of claim [[1]] 2, wherein [[the]] said excitation light source comprises an excitation filter having a filter range corresponding to excitation of flavoprotein auto-fluorescence.

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